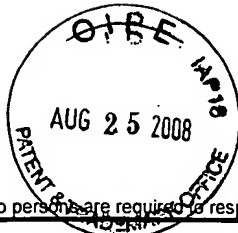


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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

3190-54

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on August 21, 2008

Signature _____

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name _____

Lance J. Lieberman

Application Number

10/613,937

Filed

July 3, 2003

First Named Inventor

Geoffrey S.M. Hedrick

Art Unit

2629

Examiner

Michael Pervan

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐

applicant/inventor.

☐

assignee of record of the entire interest.

See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☒

attorney or agent of record.

28,437

Registration number _____

☐

attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34 _____

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212-687-2770

Telephone number

August 21, 2008

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐

*Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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In the "final" Office Action of February 21, 2008, the Examiner has rejected claims 1 to 12 under 35 U.S.C. §103(a) as allegedly unpatentable over Harter (US Patent 6,447,132) in view of Yamamoto et al (US Patent 7,242,384). Applicant disagrees.

The claimed invention is directed to a method (independent claims 1 and 4) and apparatus (independent claims 2 and 3) for variably illuminating a flat panel display with two different types of illumination based on the level of ambient light. In bright light (e.g. daylight), a fluorescent lamp illuminates the flat panel, while under low ambient light conditions (e.g., nighttime) one or more LEDs (light emitting diodes) illuminate the display. At an intermediate level of brightness (a "transition illumination level"), the two types of light are variably combined to provide a seamless transition between the predetermined upper and lower ranges of illumination. The inventive method and apparatus are most especially useful in controlling the internal or backlit illumination of a flat panel display on which flight-related information is presented to the flight crew in the cockpit of an aircraft, in which the display illumination level must be maintained – to avoid overwhelming the flight crew's vision with critical flight information displays illuminated with either too much, or too little, light – within a suitable range while smoothly varying the display illumination, particularly as the critical transition between the high light level fluorescent lamp and low light level LED-based illumination is effected.

The invention provides two types of illumination sensors (which are implemented by photosensors in the disclosed embodiments): one to monitor the light *impinging* on the display panel (i.e. ambient light), and one to monitor the level of *generated* light that is illuminating the panel (i.e. the current display screen illumination level or *brightness*). The two monitored levels are compared and the supply of operating power to the fluorescent lamp and to the LEDs are adjusted so that at all times the proper, intended level of light illuminates the panel and is varied in an uninterruptedly smooth manner throughout the range of illumination which extends between a predetermined maximum illumination level suitable for viewing of the display screen in ambient daylight conditions and a

predetermined minimum illumination level suitable for viewing of the display screen in ambient night conditions.

The key to the advance provided by the present invention is in its ability to provide an uninterruptedly smooth variation in the display screen illumination level or brightness in the region at and about the so-called "transition illumination level" -- i.e. the point at which the source of illumination for the display screen is switched between the high-output fluorescent lamp and the low output LED(s). The difficulty in illuminating the display screen at specific, intended brightness levels in this transition region arises because of certain inherent operating characteristics of fluorescent lamps, namely *persistence* associated with deactivation of a fluorescent lamp, and the lag or delay in the emission of light from a fluorescent lamp when the plasma in the fluorescent lamp energizes as power is first applied to the lamp. To compensate for these characteristics of fluorescent lamps, the present invention monitors the *actual* "current display screen illumination level" -- i.e. its actual *brightness* -- and provides the monitored level to the controller which operates (i.e. supplies electrical operating power to) the fluorescent tube and the LED(s). The controller uses this monitored level signal to operatively "decrease the LED electrical control signal in accordance with the monitored current display screen illumination level and the present desired display screen illumination level to correct for fluorescent lamp persistence at fluorescent lamp shut-off", and to operatively "increase the LED electrical control signal in accordance with the monitored current display screen illumination level and the present desired display screen illumination level to correct for fluorescent lamp start-up delays and fluorescent lamp start-up illumination level variations when the fluorescent lamp is initially powered up". (See, e.g., claim 1) In this manner, uninterruptedly smooth variation of the display screen illumination level is assured as the screen illumination level is varied throughout its entire range between its predetermined maximum illumination level suitable for viewing of the display screen in ambient daylight conditions and its predetermined minimum illumination level suitable for viewing of the display screen in ambient night conditions, and most especially at and about the predetermined

transition illumination level at which a change between the two (i.e. between the high and low level) sources of display illumination is effected. In the preferred forms of the invention disclosed by applicant, the display illumination level or brightness sensor is an optical photosensor.

The cited Harter patent discloses a two-level brightness control for a vehicle head up display (HUD) in which (Fig. 2) a high brightness light source 21 is operated to illuminate an image-projecting LCD electronic display 26 in bright or daylight conditions, and a low brightness light source 22A, 22B is operated to illuminate the display in low light and nighttime conditions. Harter teaches that the high brightness light source 21 is preferably "one or more halogen bulbs that produce bright light 21A" (column 4, lines 20 to 22), and that the low brightness light sources 22A and 22B are preferably "one more fluorescent lights suitable for producing low brightness light" (column 4, lines 45 to 47). Operation of the high and low brightness light level sources is based *solely* on *ambient light conditions* which are monitored by a light sensor 17 mounted on the outside of the vehicle

The Examiner expressly acknowledges in the Office Action that Harter "does not disclose monitoring the current display screen illumination level and providing said monitored level to a display screen illumination level controller that is operable for illuminating the display screen at said determined desired display screen illumination level", as each of applicant's claims recite, and cites Yamamoto to remedy that deficiency.

Yamamoto is directed to an image processing device whose objective is

"...to provide an image display device that achieves satisfactory color matching irrespective of variations in the environmental and other conditions under which an image is observed, variations with time in the characteristics of a color filter, or variations with ambient temperature or with time in the characteristics of a backlight source." (Col. 3, ll.12-18)

Yamamoto differentiates its invention by explaining that, in the prior art:

"...even if a color management system achieves color matching between images displayed on different personal computers under specific ambient-light conditions and at a given time, it is difficult to maintain the color matching between the images against the deterioration with time of the devices used, because different personal

computers differ in the period over which their monitor has been used and in their characteristics.” (Col. 3, ll. 1-8.)

Thus, the Yamamoto invention provides a system for assuring *consistency* in brightness and chromaticity of color images displayed on different LCD panels or on a single LCD panel as ambient or internal illumination conditions or characteristics change.

It does so by including in its system “an optical sensor for measuring how the liquid crystal panel is emitting R, G, and B light”, the results of which is used “for varying how R,G. and B light is emitted to display an image on a display panel” to correct “brightness or chromaticity or both of the image”. (Col. 3, ll. 19-36)

The Examiner contends that it would have been obvious to the person of skill, at the time of applicant’s claimed invention, to incorporate the sensor of Yamamoto into the device of Harter “*because it achieves satisfactory color matching* irrespective of variations in the environmental and other conditions under which an image is observed.” (Office Action, p. 6, ll. 3-7)

Applicant’s claimed method and apparatus, however, has no relation to “color matching”. Applicant solves a problem, and provides a solution, not discussed or apparently recognized by Harter or Yamamoto or any other known reference – a prior inability to *smoothly* transition between fluorescent and LED flat panel display backlights with changing ambient light conditions. Why, then, would one skilled in the art even *consider* the Examiner’s proffered combination? Only in view of applicant’s *recognition* of this problem, and its source, does the Examiner’s proffered incorporation, in the device of Harter, of the sensor disclosed by Yamamoto for “color matching” make *any* sense; this is nothing more than classic impermissible hindsight reconstruction based on applicant’s disclosure and teaching.

The Yamamoto screen brightness measuring sensor is disclosed and intended for use in correcting RGB color variations in the light provided by a *single* LCD panel illumination source; that disclosed use is totally *unrelated* to smoothing the transition between two *different* display panel

backlight sources, as in applicant's claims. Why, again, would the person of skill even *consider* incorporating the Yamamoto sensor in the Harter device which includes *multiple* backlights between which the device must transition, and for what purpose? Put another way, what (other than applicant's disclosure) would motivate the person of skill to so incorporate the Yamamoto sensor in the Harter device that it provides the claims-recited functionality to correct for fluorescent tube shut-down and start-up characteristics in the transition to or from LED illumination?¹ Applicant suggests that it is only the Examiner's desire to justify a rejection of the claims that provides such motivation.

Thus, even assuming, *arguendo*, the propriety of incorporating the Yamamoto sensor in the Harter device as the Examiner proposes, there is no teaching or suggestion or motivation in that art for utilizing the sensor in such a combination to vary an LED electrical control signal² to respectively decrease or increase the LED control signal to correct for fluorescent tube persistence (at shut-off) or start-up delays and illumination level variations (at power-on). The Examiner proposes to simply combine the sensor of Yamamoto into the Harter system, stir the resulting combination with a virtual spoon while uttering an incantation, and magically obtain the claims-recited functionality that neither document in any manner discloses, references or suggests.

Applicant accordingly submits that the Examiner's proffered combination of Harter and Yamamoto is improper and, in any event, fails to meet the express requirements of the claims. Reversal and withdrawal of the final rejection of claims 1 to 12 are solicited.

¹ Claim 1, for example, recites the step of "further varying the LED electrical control signal for predeterminedly illuminating the display screen at and proximate the predetermined transition illumination level to one of (i) decrease the LED electrical control signal in accordance with the monitored current display screen illumination level and the present desired display screen illumination level to correct for fluorescent lamp persistence at fluorescent lamp shut-off, and (ii) increase the LED electrical control signal in accordance with the monitored current display screen illumination level and the present desired display screen illumination level to correct for fluorescent lamp start-up delays and fluorescent lamp start-up illumination level variations when the fluorescent lamp is initially powered on...." Each of independent claims 2, 3 and 4 contains a corresponding recitation. *Nothing* in Yamamoto, or in Harter, mentions or even remotely relates to fluorescent lamp start-up or shut-down operating characteristics.

² The Harter device does not even include applicant's recited LED's as an illumination source; its low light level source is one or more fluorescent tubes (which is applicant's *high* light level source).